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AVERAGE AND PROBABILITY.

101. Proposed by L. C. WALKER, Assistant Professor of Mathematics, Leland Stanford Jr. University, Palo Alto, Cal.

By direct calculation obtain the average distance between to points in the surface of a circle.

102. Proposed by PROFESSOR CAVALLIN.

A random straight line is determined by two points taken at random within a sphere; find the average velocity acquired by a particle in descending the line. [No. 6742, *Educational Times*. Unsolved.]

93. Proposed by LON C. WALKER, Assistant in Mathematics, Leland Stanford, Jr. University, Palo Alto, Cal.

A circle is drawn at random both in magnitude and position, but so as to lie wholly on the surface of a given semi-circle. Show that the chance that a radius drawn at random in the semi-circle will cut the circle is

$$\frac{4}{3\pi-4}\left(1 - \frac{1}{\pi} - \frac{2}{\pi}\log 2\right).$$

*** Solutions of these problems should be sent to B. F. Finkel not later than May 10.

MISCELLANEOUS.

102. Proposed by CHARLES C. CROSS, Whaleyville, Va.

Required the least multiple of 17 which when divided by 2, 3, 4, 5, ... 16, leaves, in each case, 1 as a remainder.

103. Proposed by ELMER SCHUYLER, B. Sc., Professor of German and Mathematics in Boys' High School, Reading, Pa.

Solve, $\log \sin x = \sin \log x$.

104. Proposed by HARRY S. VANDIVER, Bala, Pa.

A Theorem of Fermat. The area of a right angled triangle with commensurable sides cannot be a square number. [Cf. *Chrystal's Algebra*, Vol. II., page 535.]

*** Solutions of these problems should be sent to J. M. Colaw not later than May 10.

NOTES.

Gustav Fock is offering for sale the very valuable mathematical library of Dr. Bruno Christoffel.

Professor M. Cantor of Heidelberg, has been elected a correspondent of the St. Petersburg Academy of Science.

Professor Henry S. White, of Northwestern University, has received leave of absence and will remain abroad until October.